It was demonstrated that subunits circulate in pregnancy and that the cultured placenta secretes large quantities of the α subunit of HCG but small quantities of β subunit. Similar experiments have been performed with tissue cultures of fœtal pituitaries in collaboration with Dr J L Pasteels. It was evident that the absolute level of α subunit is considerably greater than that of LH β subunit and the whole FSH and LH molecules from the beginning of the culture. This α subunit level declines more slowly and sometimes shows an independent and late increase.

We may speculate that the α and β subunits could be prohormones synthesized by independent mechanisms; cellular dedifferentiation such as that obtained during placenta cultures, might enhance the release of α subunit.

Meeting 25 October 1972

President's Address

Endocrine Bone Disease [*Abstract*]

by G F Joplin PhD FRCP
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The interaction between hormones and endocrine disease or calcium metabolism was reviewed from the author's published work with many collaborators (*see* references), or material in press. Emphasis was placed on the frequent occurrence of defective mineralization of osteoid, or even frank osteomalacia in patients with primary hyperparathyroidism even if very mild or normocalcæmic. This is reversible with low doses of vitamin D, as seen biochemically, histologically and radiologically. It appears that the hyperparathyroid state is the cause of vitamin D deficiency. It may be that this effect of vitamin D deficiency on the bones explains the sensitivity of isotopically determined bone turnover measurements to primary hyperparathyroidism.

The role of hyperabsorption of calcium by the gut, as a mechanism for the slight elevation of serum calcium characteristic of acromegaly was demonstrated from studies using calcium isotopes.

Finally, the response of Paget's disease, whether in the child or adult, to synthetic human calcitonin (CIBA-GEIGY) was reviewed. The results with respect to pain relief, biochemical features of activity and (after some years) radiological regression are striking.

REFERENCES

Bordier Ph J, Woodhouse N J Y, Maris P J, Joplin G F, Tun Chot S, Sigurdsson G & MacIntyre I (1972) *European Journal of Clinical Investigation* 2, 275

Hartog M, Fraser R & Joplin G F (1967) *Proceedings of the Royal Society of Medicine* 60, 477

Joplin G F, Robinson C J, Melvin K E W, Thompson G R & Fraser R (1967) In: L'Osteomalacie. Ed. D J Hioco. Masson, Paris; pp 249–256

Melvin K E W, Hepner G W, Bordier P, Neale G & Joplin G F (1970) *Quarterly Journal of Medicine* 39, 83

Melvin K E W, Joplin G F & Fraser R (1968) *Proceedings of the Royal Society of Medicine* 61, 87

Nadarajah A, Hartog M, Redfern B, Thalassinos N, Wright A D, Joplin G F & Fraser R (1968) *British Medical Journal* iv, 797

Nunziata V, Reiner M, Nadarajah A, Woodhouse N J Y, Fisher M & Joplin G F (1971) *Israel Journal of Medical Science* 7, 388

Reiner M, Nadarajah A, Leese B & Joplin G F (1970) *Calcified Tissue Research* 4, Suppl. p 95

Woodhouse N J Y, Doyle F H & Joplin G F (1971) *Lancet* ii, 283

Woodhouse N J Y, Fisher M, Sigurdsson G, MacIntyre I & Joplin G F (1972) *British Medical Journal* iv, 267

Woodhouse N J Y, Reiner M, Bordier Ph, Kalu D N, Fisher M, Foster G V, Joplin G F & MacIntyre I (1971) *Lancet* i, 1139